

## REMARKS/ARGUMENTS

Claims 1-28 were originally presented for examination. Claims 1, 6, 25, and 27 have been amended. Claim 26 is cancelled without prejudice. Claims 29-38 are added. No new matter has been added. **Accordingly, Claims 1-25 and 27-38 are presently pending in the application.** Reconsideration and allowance are respectfully requested.

### Claim Rejections Under 35 U.S.C. §103:

**Claims 1-5, 7-14, and 17-28** stand rejected under 35 U.S.C. §103 as being unpatentable over **Li (USPN 6,417,914)** in view of **Haditsch (USPN 5,300,847)**.

### Re: Claims 1-5 and 25-28:

The office action has rejected Claims 1-5 and 25-28 under 35 USC §103(a), as being unpatentable over Li in view of Haditsch. Claim 26 has been cancelled.

Claim 1 has been amended to include the limitation of electrical leads arranged such that “the electrical leads pass through the coolant return lines”. This is distinct from the Haditsch reference which includes an “excitation supply line bolt 13” which passes through a coolant input line (See Haditsch, e.g., 15 and H of Fig. 1). This is important because of the heat generated by the “excitation supply line bolt 13” or in our case the electrical leads. This heat build-up can be substantial and is carried away by the coolant. Significantly, this heats up the coolant which is then carried into the chamber containing the coils 4. In a turbogenerator (such as in the Haditsch device) such heating is not of much concern. However, in an extraordinarily high precision device such as a photolithography machine (or in an e-beam machine) used in semiconductor processing this can be a big problem. The heating caused by the wires can cause unpredictable (and undesirable) heating of the coolant. This heated coolant is then carried into the coolant jacket where it causes unpredictable variations in the coil temperature. This affects the electrical behavior of the in the coils resulting in subtle and unpredictable variations in the current flowing through the coils. This results in jerky or unpredictable movements in the stages used to move components (wafers, lenses, etc.) in a photolithography machine. In a field where error is measured in fractions of angstroms (Å) the smallest of variations can spell disaster. In order to avoid this problem, in the claimed invention the leads are cooled in the “coolant return lines” whereby heat is carried out of the

jacket away from the coils rather than into the jacket where it can heat the coils. Thus, the cited art is not applicable to the present invention. Because the cited art fails to teach or suggest “electrical leads [that] pass through the coolant return lines” the cited references fail to teach all of the claim limitations. Consequently, the cited references fail to establish a prima facie case of obviousness as to Claims 1-5. Accordingly, the applicants respectfully submit that the amendment to Claim 1 (and thus dependent claims 2-6) overcomes this grounds for rejection.

A similar line of reasoning can be applied to Claims 25-28. Applicants have cancelled Claim 26 and amended Claim 25 to include the limitations of both Claims 25 and 26. Claim 27 has been amended to depend on Claim 25. As amended, Claim 25 now includes the limitation of “at least one coolant return line whereby the electrical leads are cooled by the coolant within the coolant return line”. For the reasons elucidated above with respect to Claims 1-5, this is a significant distinction between the cited references and the claimed invention. Thus, for at least the foregoing reasons, the applicants respectfully submit that Claims 25, 27, and 28 overcome this grounds for rejection.

**Re: Claims 7-24:**

As above, the office action has rejected Claims 7-24 under 35 USC §103(a), as being unpatentable over Li in view of Haditsch. This rejection cannot be sustained because Li is an inapplicable reference under 35 U.S.C. §103(c). 35 U.S.C. §103(c) states that:

“Subject matter developed by another person, which qualifies a prior art only under one or more of subsections (e), (f), and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.”

Here, the Li reference was filed before the filing of the present application and issued subsequent to the filing of the present application. Thus, the cited reference is cited as 35 U.S.C. §102(e) art. Moreover, the assignee of the Li reference is Nikon Corporation (see, face page of the Li reference). Additionally, the assignee of the present application is Nikon Corporation (see, the assignment of patent application submitted herewith as an attachment). Therefore, the Li reference cannot be used to preclude patentability of the present application.

#### Claims 15-23:

Additionally, as to Claims 15-23, the arguments set forth hereinabove with respect to Claims 1-5 and 25-28 are also applicable. For example, Claim 17 includes the limitation of “coolant lines [that] include at least one coolant input line and at least one coolant output line and wherein said electrical leads are routed through the at least one coolant output line”. For the reasons set forth above, such a distinction is a significant difference not taught or suggested by any of the cited references. For the reasons elucidated above with respect to Claims 1-5 this is a significant distinction between the cited references and the claimed invention. Consequently, for at least the foregoing reasons, it is respectfully submitted that the cited references fail to establish a prima facie case of obviousness as to Claims 15, 16, 17, and the claims depending therefrom (18-23). Therefore, the applicants respectfully request that this grounds for rejection be withdrawn as to Claims 15, 16, 17, and the claims depending therefrom (18-23).

#### Claims 14, 18, and 23

Additionally, as to Claims 14, 18, and 23 the arguments set forth hereinabove with are also applicable. Additionally, it is pointed out that the cited references fail to teach or suggest “the liquid coolant comprises a non-conductive liquid coolant”(e.g., Claim 14). The coolant suggested by Li (at 14:53-60) is water or fluorine, both of which are easily ionizable in the presence of electrical current and can hardly be considered electrically non-conductive. Thus, it cannot be said that the cited teaches or suggest using non-conductive coolants to provide an effective cooling medium for un-insulated electrical wires. Therefore, the cited art fails to establish a prima facie case of obviousness as to Claim 14. Substantially similar limitations are found in Claims 18 and 23. Thus, the same arguments apply to these claims as well. Consequently, for at least the foregoing reasons, it is respectfully submitted that the cited references fail to establish a prima facie case of obviousness as to Claims 14, 18, and 23. Therefore, the applicants respectfully request that this grounds for rejection be withdrawn as to Claims 14, 18, and 23.

Thus, it is respectfully submitted that the cited art fails to establish a prima facie case of obviousness as to Claims 1-5, 7-14, 17-24, and 26-28. As a result, it is argued that for the reasons set forth above, that these claims are allowable in their present form.

**Allowable Claims:**

The applicants thank the Examiner for the indication of allowance as to Claims 6, 15, and 16. Above it is argued that the base claims are in fact patentable and therefore Claims 6, 15, and 16 need not be amended. However, Claims 6, 15, and 16 have been re-drafted in independent form as new Claims 29-38. These claims are believed to be in condition for allowance.

**New Claims:**

Claims 29-38 have been added. These claims are not new matter but are rather re-characterizations of the existing Claims and are thus supported in the specification. For example, Claim 29 is substantially the same as Claim 5. It is submitted that this claim is allowable for at least the following reasons. Claim 29 includes the limitation of having an “electrical stage motor includes magnetic coils encased in a coolant jacket which encloses the coils and encloses an electrically non-conductive coolant material”. A detailed discussion of this limitation is provided hereinabove in the discussions of Claims 14, 18, and 23.

Claim 30 is substantially the same as Claim 6, which has been indicated as allowable.

Claim 31 is substantially the same as Claim 15, which has also been indicated as allowable.

Claim 32 is substantially the same as Claim 16, which has also been indicated as allowable.

Claim 33-38 depend from allowable Claim 31 and therefore should also be allowable.

It is respectfully submitted that in light of the above amendments and discussion, that Claims 1-25 and 27-38 are patentable over the art of record and that the present application is in condition for allowance. A Notice of Allowance is respectfully requested. Should the Examiner have any questions regarding the above amendments, the Examiner is cordially invited to telephone the Applicants represented below.

Respectfully submitted,

BEYER WEAVER & THOMAS, LLP



Francis T. Kalinski II

Reg. No. 44,177

P.O. Box 778  
Berkeley, CA 94704-0778  
(831) 655-2300